A REVISED KEY TO THE CHINESE SPECIES OF JASMINUM

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RECENTLY, while identifying a series of Chinese specimens of the genus *Jasminum*, I realized that a dozen or more taxa had been added since my earlier synopsis (Jour. Arnold Arb. 12: 145. 1932) of the genus in China. In this first paper no new species were described. However, nearly half of the names already published were reduced to synonymy.

Since then three papers have been published by me, all of them devoted to the descriptions of new taxa or changes in nomenclature. These papers are: (1) "A new *Jasminum* from Hainan," published in Sunyatsenia 3: 110. 1936; (2) "New and noteworthy species of Asiatic *Jasminum*," in Jour. Arnold Arb. 20: 64. 1939; and (3) "Further notes on *Jasminum*," also in Jour. Arnold Arb. 20: 403. 1939. Twenty taxa were described as new or changed in status in these three publications.

Other papers were published on *Jasminum* in China during this period; one, which was overlooked by me at the time, was by Hayata, Ic. Pl. Formosa, 9: 70. 1920. In this paper a new species, *J. shimadai*, was described from Formosa. At first I was surprised that I had overlooked this paper but finally realized that in 1932, when I wrote the synopsis, Formosa was not considered as part of China but was associated with Japan. The Japanese botanists working on the flora of the island at that time related their works with the Japanese rather than the Chinese flora. The description and illustration by Hayata show that this taxon is a synonym of the very variable and widely distributed *J. lanceolarium* Roxb.

In 1933, Gagnepain, in his paper "Oleacées nouvelles d'Indochine" (Bull. Soc. Bot. France, 80: 70, 74. 1933) oddly enough included two new Chinese species, *J. fuchsiaefolium* and *J. pinfaensis*. In his description of the former the author noted that the corolla was unknown and the fruit immature which makes it difficult to include in a key. The latter species, *J. pinfaense*, although not seen by me, is surely new and has been incorporated in the key using the description for characters.

Finally, Handel-Mazzetti, Symb. Sin. 7 [2]: 1012. 1936, described a new form, *J. lanceolarium* f. *unifoliolatum*, a surprising association, since *J. lanceolarium* belongs to the series *Trifoliolata* and the described form undoubtedly belongs to the series *Unifoliolata*. The very brief description consists of only two words, "*Folio unifoliolata*." I could understand the placing of this taxon with *J. lanceolarium* were there both trifoliolate and unifoliolate leaves present such as are found in *J. forrestianum*, but Handel-Mazzetti merely states that the specimen had four pairs of unifoliolate leaves. Probably, the specimen either belongs to an already described species in the unifoliolate series or represents a new species. No material is available to me at this time.

At the suggestion of some of my colleagues I have revised my earlier key to include most of the new additions. Probably other species have since been described by Chinese botanists but their works to a great extent are not available at present for comparison and study.

Further to assist workers in this group a list of accepted taxa and synonyms is given following the key.

KEY TO THE SERIES

A. Leaves alternately arranged. ..... 1. *Alternifolia.*
A. Leaves opposite in arrangement.
  B. Leaves compound.
    C. Leaves trifoliolate. ..... 2. *Trifoliolata.*
    C. Leaves five-foliolate or more. ..... 3. *Pinnatifolia.*
  B. Leaves simple. ..... 4. *Unifoliolata.*

Series 1. ALTERNIFOLIA DC.

A. Calyx-teeth subulate-setaceous, longer than calyx-tube.
  B. Leaves and plant glabrous. ..... *J. floridum.*
  B. Leaves puberulous. ..... *J. giraldii.*
A. Calyx-lobes diminutive or obtuse, shorter than calyx-tube.
  B. Leaves both simple and ternate; leaflets 5–8 cm. long; inflorescence 30–50-flowered, the corymbs 7–12 cm. across.
    C. Calyx-lobes and pedicels glabrous. ..... *J. diversifolium* var. *glabricymosum.*
    C. Calyx-lobes and pedicels villous. ..... *J. diversifolium* var. *subhumile.*
  B. Leaves ternate or pinnate; leaflets 1.5–3.5 cm. long; inflorescence 3–8-flowered. ..... *J. humile.*

Series 2. TRIFOLIOLATA DC.

A. Calyx-lobes foliaceous.
  B. Leaves persistent, coriaceous, present at time of flowering. ..... *J. mesnyi.*
  B. Leaves deciduous; flowers appearing before leaves.
    C. Plants erect or scandent; simply branched.
      D. Leaves uniformly green. ..... *J. nudiflorum.*
      D. Leaves variegated or some entirely yellow. ..... *J. nudiflorum* f. *aureum.*
    C. Plants pulvinate; intricately ramose. ..... *J. nudiflorum* var. *pulvinatum.*
A. Calyx-lobes quite vestigial or subulate when present.
  B. Leaves palmately trinerved.
    C. Leaves and branchlets glabrous. ..... *J. urophyllum.*
    C. Leaves and branchlets puberulent. ..... *J. urophyllum* var. *wilsonii.*
  B. Leaves pinnately veined.
    C. Leaves and branchlets glabrous.
      D. Terminal leaflet same size or only slightly larger than the lateral leaflets, the veining obscure. ..... *J. lanceolarium.*
      D. Terminal leaflet more than twice as large as the lateral leaflets, the veining pronounced, especially on the lower surface. ..... *J. forrestianum.*

C. Leaves and branchlets pubescent.
D. Calyx-lobes vestigial; leaves and branchlets puberulent. ..... *J. lanceolarium* var. *puberulum.*
D. Calyx-lobes subulate-setaceous; leaves and branchlets pilose.
E. Corolla-tube up to 4 cm. long; lateral leaflets petiolulate, smaller than the terminal leaflet but up to 6 cm. long. ..... *J. sinense.*
E. Corolla-tube ca. 2 cm. long; lateral leaflets sessile, ca. 1 cm. long, about one-tenth the length of the terminal leaflet. ..... *J. anisophyllum.*

Series 3. PINNATIFOLIA DC.

A. Calyx-lobes subulate-setaceous, 5–8 mm. long.
B. Flowers white. ..... *J. officinale.*
B. Flowers pink. ..... *J. stephanense.*
A. Calyx-lobes usually obtuse or, if subulate, not more than 1 mm. long.
B. Leaflets distinctly trinerved. ..... *J. polyanthum.*
B. Leaflets five-nerved. ..... *J. dispermum.*

Series 4. UNIFOLIOLATA DC.

A. Calyx-lobes diminutive, obtuse, not subulate-setaceous.
B. Corolla * 35 mm. long (in toto), the tube 25 mm. long; leaves 10–26 cm. long, 6–10 cm. wide.
C. Inflorescence a subsessile, axillary cyme, with ca. 10 flowers. ..... *J. coffeinum.*
C. Inflorescence an axillary panicle or raceme (sometimes terminal), many-flowered.
D. Veins at an acute angle, arching gracefully upward; inflorescence an axillary or terminal raceme. ..... *J. wangii.*
D. Veins at an obtuse angle, nearly perpendicular to midrib, rather straight, arching only slightly; inflorescence an axillary panicle. ..... *J. robustifolium.*
B. Corolla ca. 25 mm. or less in length; leaves seldom over 4 cm. wide, usually considerably less.
C. Inflorescence terminal, a many-flowered, diffuse cyme up to 10 cm. wide; corolla-tube and lobes (linear) nearly equal. ..... *J. seguinii.*
C. Inflorescence terminal and axillary, the flowers usually in close clusters; corolla-tube considerably longer than the lobes (acute).
D. Leaves usually 9–16 cm. long, 3–4 cm. wide, lanceolate or oblong-lanceolate; Western China (Yunnan). ..... *J. duclouxii.*
D. Leaves 3.5–8.5 cm. long, 1.5–4 cm. wide, ovate; Eastern China (Kwangtung). ..... *J. microcalyx.*
A. Calyx-lobes subulate-setaceous.
B. Calyx-tube glabrous.
C. Leaves coriaceous.
D. Calyx-lobes ciliate; leaves pale whitish green. ..... *J. rehderianum.*
D. Calyx-lobes eciliate; leaves verdant, not whitish.
E. Calyx-lobes not exceeding 2 mm. in length. *J. cinnamomifolium.*
E. Calyx-lobes much longer, 6–8 mm. long.

* Corolla in *J. robustifolium* unknown.

F. Leaves small, ovate, 4 cm. or less long, ca. 1.5 cm. wide. ..... *J. trineuron.*
F. Leaves much longer, 7–10 cm. long, ca. 1.5 cm. wide. ..... *J. laurifolium.*
C. Leaves not coriaceous.
D. Flowers red; fruit yellow. ..... *J. beesianum.*
D. Flowers white; fruit black. ..... *J. nervosum.*
B. Calyx-tube pubescent.
C. Leaves and branchlets flavescent; leaves 2–4 cm. long, chartaceous, appearing nearly triangular. ..... *J. nintooides.*
C. Leaves glabrous or pubescent, not flavescent, seldom less than 6 cm. long (occasionally 4–7 cm. in *J. multiflorum*).
D. Inflorescence a 3-flowered cyme subtended by two pairs of bracts with the upper pair considerably longer than the lower; flowers subsessile or nearly so; calyx white or yellowish white in flower. ..... *J. albicalyx.*
D. Inflorescence not conspicuously bracteate, even though cymose; calyx green, not white in flower.
E. Corolla conspicuously double, the corolla-tube short, ca. 5 mm. long; leaves with sharply raised primary veins, especially on lower surface. ..... *J. sambac.*
E. Corolla simple, with 5 lobes (occasionally 6), the corolla-tube usually 10 mm. or more in length; primary veins usually not conspicuous.
F. Leaves thin, membranaceous; calyx densely pilose with long, whitish pubescence. ..... *J. pilosicalyx.*
F. Leaves not particularly thin, some coriaceous; calyx pubescence not long, whitish, pilose.
G. Stem leaves cordate at the base. ..... *J. multiflorum.*
G. Stem leaves cuneate or truncate at the base.
H. Leaves distinctly cuneate at the base. *J. coarctatum.*
H. Leaves truncate or obtuse at the base, not cuneate.
I. Corolla-tube ca. 1 cm. long; leaves elliptic-oblong, 11 × 3.5 cm., very acuminate at the apex, the veins inconspicuous on the upper surface. ..... *J. pinfaense.*
I. Corolla-tube up to 3 cm. long; leaves ovate, seldom over 6–7 cm. long, obtuse to broadly acute at the apex, the veins conspicuously depressed on the upper surface. ..... *J. amplexicaule.*

FINDING LIST FOR THE TAXA

Accepted names are printed in bold-face type, synonyms in italics.

J. affine Lindl. = **J. officinale**
J. albicalyx Kob.
J. amplexicaule Buch.-Ham.
J. anastomosans Wall. = **J. nervosum**
J. angulare Bunge = **J. nudiflorum**
J. angustifolium Ker. = **J. laurifolium**
J. angustifolium var. *β laurifolium* Ker = **J. laurifolium**
J. anisophyllum Kob.
J. arboreum Ham., not Schultes = **J. diversifolium**
J. argyi Lévl. = **J. floridum**

J. beesianum Forrest & Diels
J. beesianum × *officinale* f. *grandiflorum* = J. × **stephanense**
J. bicorollatum Noronha = **J. sambac**
J. blinii Lévl. = **J. polyanthum**
J. bodinieri Lévl. = **J. sinense**
J. chrysanthemum Roxb. = **J. humile** var. **revolutum**
J. cinnamomifolium Kob.
J. coarctatum Roxb.
J. coffeinum Hand.-Mazz.
J. delafieldii Lévl. = **J. polyanthum**
J. delavayi Franchet = **J. beesianum**
J. discolor Franchet = **J. lanceolarium**
J. dispermum Wall.
J. diversifolium Kob.
J. diversifolium var. **glabricymosum** (W. W. Sm.) Kob.
J. diversifolium var. **subhumile** (W. W. Sm.) Kob.
J. duclouxii (Lévl.) Rehd.
J. dumicola W. W. Sm. = **J. duclouxii**
J. dunnianum Lévl. = **J. lanceolarium** var. **puberulum**
J. esquirolii Lévl. = **J. multiflorum**
J. floridum Bunge
J. floridum var. *spinescens* Diels = **J. floridum**
J. forrestianum Kob.
J. fragrans Salisbury = **J. sambac**
J. fuchsiaefolium Gagn.
J. giraldii Diels
J. grandiflorum L. = **J. officinale** f. **grandiflorum**
J. heterophyllum Roxb. = **J. diversifolium**
J. heterophyllum var. *glabricymosum* W. W. Sm. = **J. diversifolium** var. **glabricymosum**
J. heterophyllum var. *subhumile* W. W. Sm. = **J. diversifolium** var. **subhumile**
J. humile L.
J. humile var. **glabrum** (DC.) Kob.
J. humile var. **siderophyllum** (Lévl.) Kob.
J. inodorum Jacq. = **J. humile**
J. inornatum Hemsley = **J. microcalyx**
J. lanceolarium Roxb.
J. lanceolarium var. **puberulum** Hemsley
J. laurifolium Roxb.
J. macrophyllum Hort. = **J. diversifolium**
J. mairei Lévl. = **J. humile** var. **siderophyllum**
J. mairei var. *siderophyllum* Lévl. = **J. humile** var. **siderophyllum**
J. mesnyi Hance
J. microcalyx Hance
J. multiflorum (Burm. f.) Andrews
J. nervosum Lour.
J. nintooides Rehd.
J. nudiflorum Lindl.
J. nudiflorum f. **aureum** Dippel
J. nudiflorum var. **pulvinatum** (W. W. Sm.) Kob.
J. nudiflorum var. *variegatum* Mouillefert = **J. nudiflorum** f. **aureum**
J. odoratum Noronha = **J. sambac**
J. officinale L.
J. officinale f. **grandiflorum** (L.) Kob.
J. pachyphyllum Hemsley = **J. lanceolarium**
J. paniculatum Roxb. = **J. lanceolarium**
J. pentaneurum Hand.-Mazz.
J. pilosicalyx Kob.
J. pinfaense Gagn.
J. polyanthum Franchet
J. prainii Lévl., syn. nov. = **J. laurifolium** Roxb.
J. primulinum Hemsley = **J. mesnyi**
J. pubescens Willd. = **J. multiflorum**
J. pubigerum D. Don β *glabrum* DC. = **J. humile** var. **glabrum**
J. pulvinatum W. W. Sm. = **J. nudiflorum** var. **pulvinatum**
J. quadrifolium Buch.-Ham. = **J. sambac**
J. quinquinerve Lambert = **J. dispermum**
J. rehderianum Kob.
J. reticulatum Wall. = **J. coarctatum**
J. revolutum Sims = **J. humile** var. **revolutum**
J. robustifolium Kob.
J. sambac (L.) Aiton
J. sambuc Wight = **J. sambac**
J. schneideri Lévl. = **J. duclouxii**
J. seguinii Lévl.
J. shimadae Hayata = **J. lanceolarium**
J. sieboldianum Blume = **J. nudiflorum**
J. sinense Hemsley
J. × **stephanense** Lemoine & Son

J. subhumile W. W. Sm. = **J. diversifolium** var. **subhumile**
J. subulatum Lindl. = **J. floridum**
J. taliense W. W. Sm. = **J. seguinii**
J. trineuron Kob.
J. tsinlingense Lingelsheim = **J. giraldii**
J. undulatum Ker-Gawler, not Willd. = **J. amplexicaule**
J. urophyllum Hemsley
J. urophyllum var. *henryi* Rehd. = **J. urophyllum** var. **wilsonii**
J. urophyllum var. **wilsonii** Rehd.
J. valbrayi Lévl. = **J. beesianum**
J. viminale Salisbury = **J. officinale**
J. violascens Lingelsheim = **J. beesianum**
J. vulgatum Lamarck = **J. officinale**
J. wallichianum Lindl. = **J. humile** var. **glabrum**
J. wangii Kob.
J. wardii Adamson = **J. beesianum**
J. zambac Roxb. = **J. sambac**
Lonicera cavaleriei Lévl. = **J. sinense**
L. rehderi Lévl. = **J. sinense**
Melodinus duclouxii Lévl. = **J. duclouxii**
Mogorium pubescens Lamarck = **J. multiflorum**
M. sambac Lamarck = **J. sambac**
M. undulatum Lamarck = **J. sambac**
Nyctanthes multiflora Burm. f. = **J. multiflorum**
N. pubescens Retzius = **J. multiflorum**
N. sambac L. = **J. sambac**
N. undulatum L. = **J. sambac**